INTRODUCTION TO COMMUNICATION SYSYETMS

END SEMESTER PROJECT

TEAM NUMBER: 13

TEAM MEMBERS:

Bachu Ganesh – 20003

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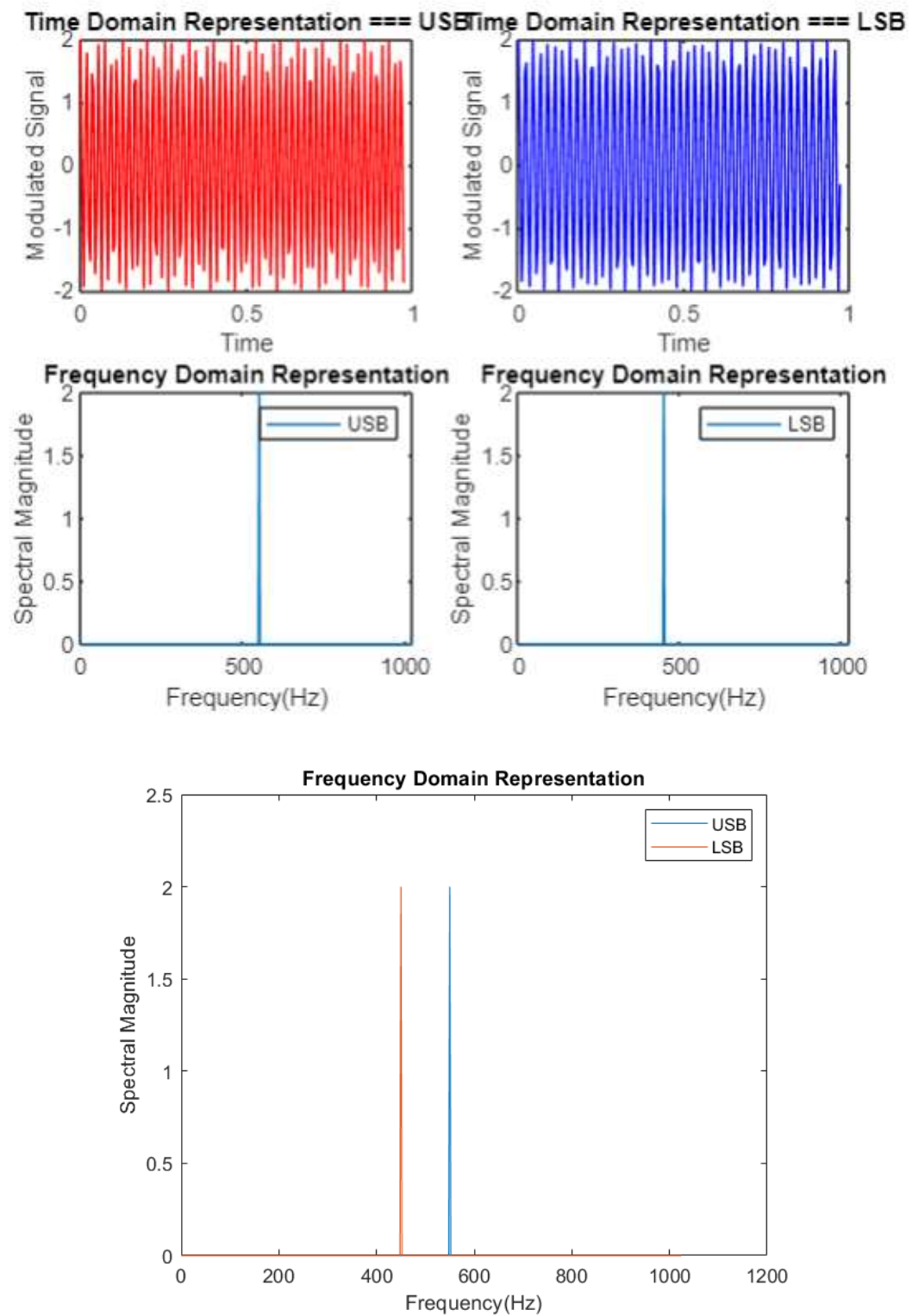Krithika S – 20034

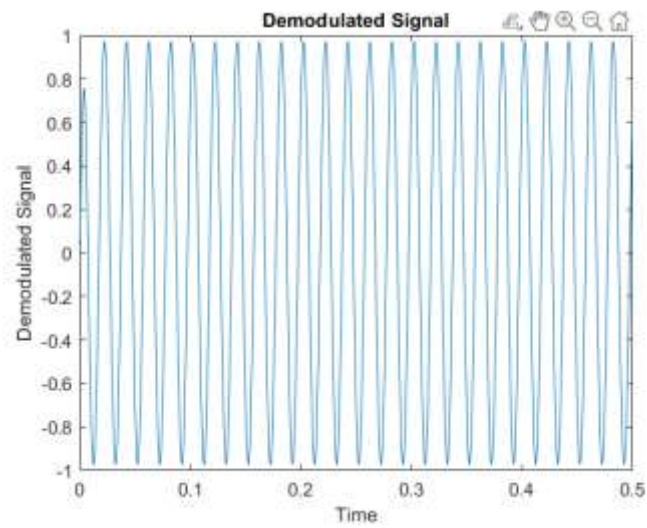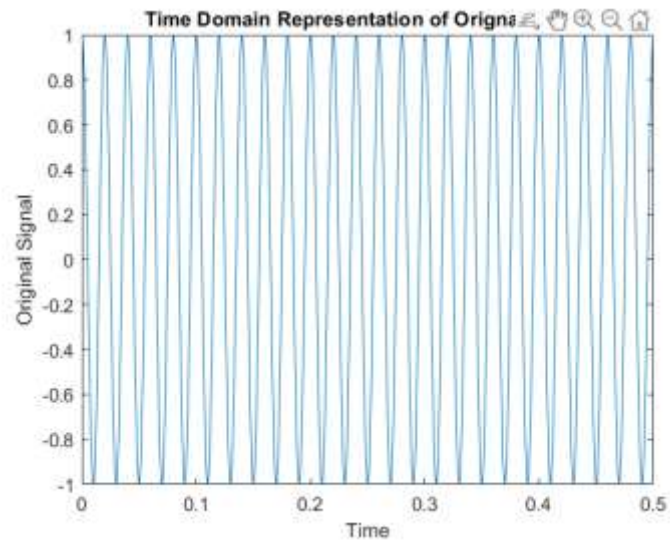Priyadharshini A R - 20051

PROJECT TITLE:

Transmission and reception of SSB amplitude modulated signals using GRC and MATLAB Simulink and GNU radio
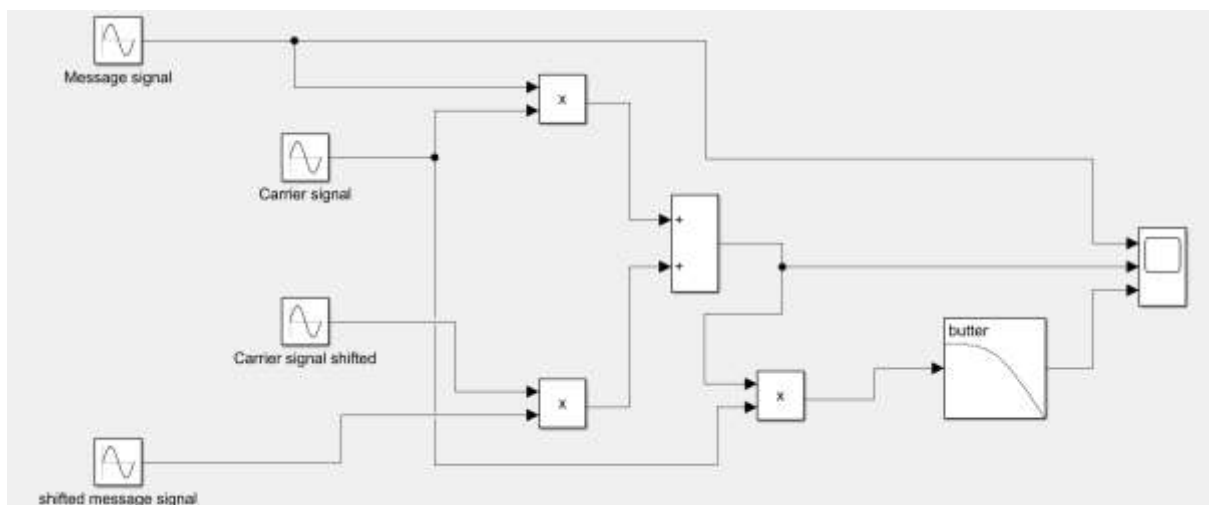
Objectives And Challenges

1) To Build an efficient communication system model which performs SSB Modulation and demodulation using GNU radio for different application areas such as mobile communication, amateur radio, point to point communication application.

2) To do SSB Implementation in Matlab using Signal Processing Toolbox provides functions and apps to analyse, pre-process, and extract features from uniformly and nonuniformly sampled signals

3) To perform SSB modulation in Simulink, create and test our system for real-time signal processing using DSP system toolbox.
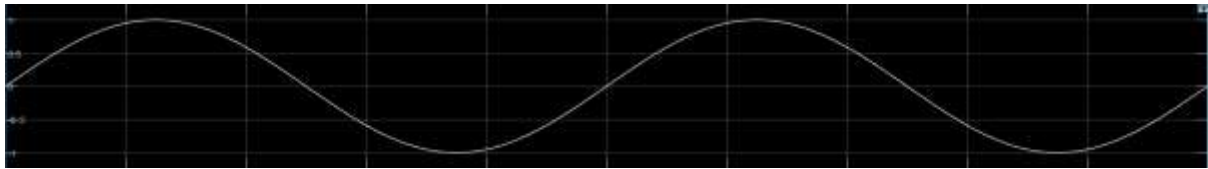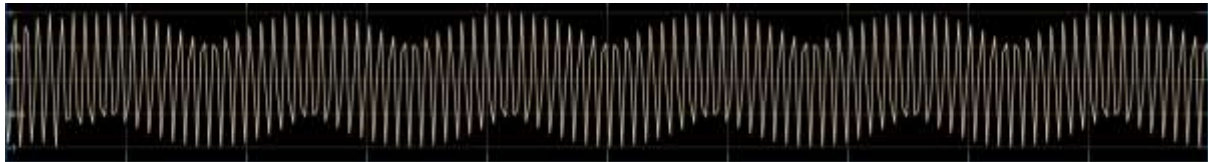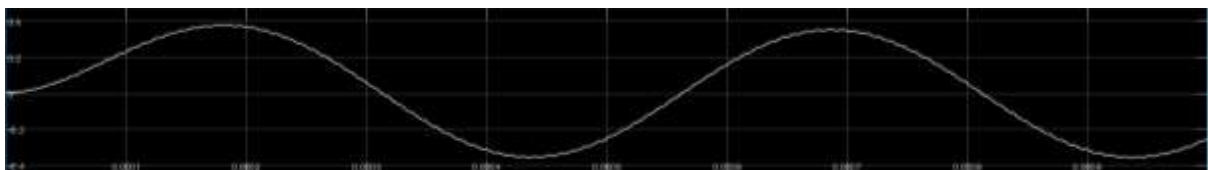
Matlab:

Time Domain Representation === USB

Modulated Signal vs Time

Time Domain Representation === LSB

Modulated Signal vs Time

Frequency Domain Representation

Spectral Magnitude vs Frequency(Hz) — USB

Frequency Domain Representation

Spectral Magnitude vs Frequency(Hz) — LSB

Frequency Domain Representation

Spectral Magnitude vs Frequency(Hz) — USB, LSB

Time Domain Representation of Original Signal

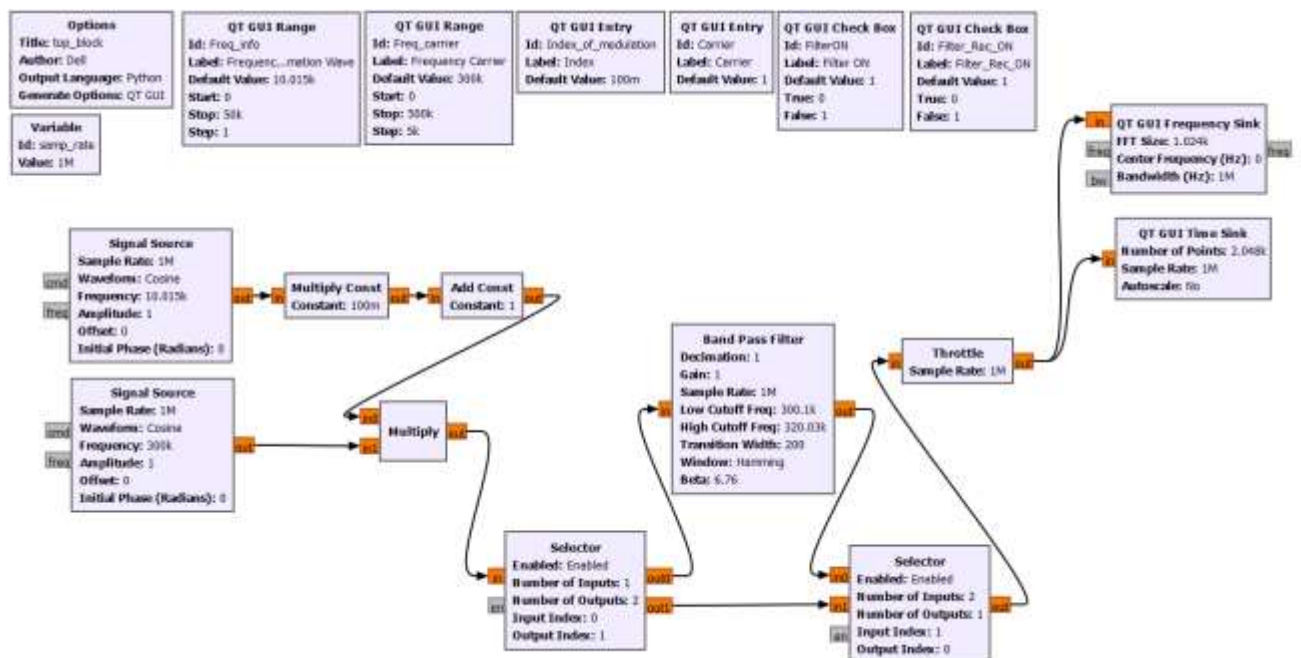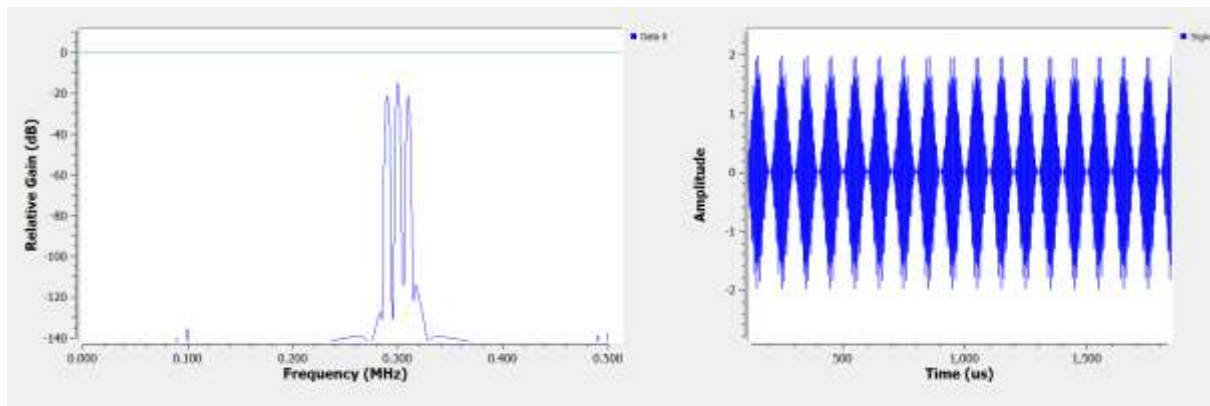Demodulated Signal

SIMULINK:
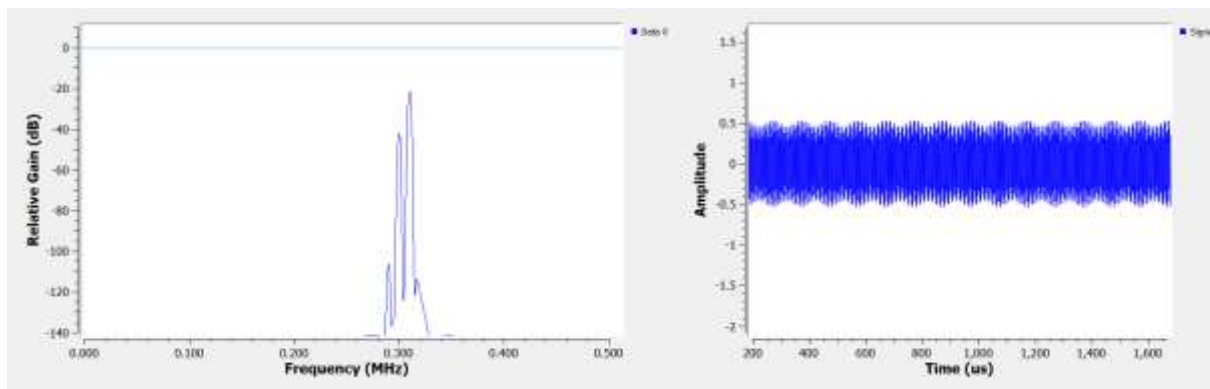
Message Signal

Modulated Signal

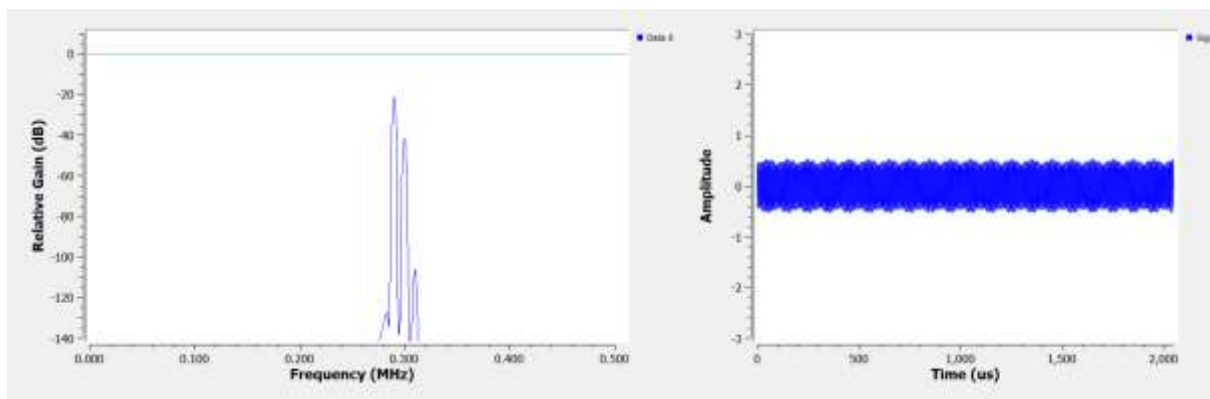**Demodulated Signal**

GNU Radio:

Original signal containing both sidebands

Frequency plot and Amplitude time graph of USB

Frequency plot and Amplitude time graph of LSB